

RECOMMENDATIONS CONCERNING KAIMU BEACH

RG:0016

For the Environmental Council Meeting

5 December 1974

From U.S. Army Corps of Engineers
And Univ. Hawaii Environmental Center

In accordance with the 1 June 1973 recommendations of the Environmental Council (of which a copy is attached), and with the request made by the Council at its meeting on 7 November 1974, representatives of the U.S. Army Corps of Engineers and the University of Hawaii Environmental Center have conferred on the plans for enlargement and conditional protection of Kaimu Beach.

The conferees were:

Corps of Engineers
John Belshé
Clarence Fujii
Karl Keller
David Swenson

Environmental Center
Doak C. Cox
Frans Gerritsen
T. T. Lee

This statement presents joint recommendations of the conferees, developed under the assumption that Kaimu Beach will be enlarged as recommended by the Environmental Council. The recommendations cover:

- A. plans for the enlargement, replenishment, and conditional protection of the beach;
- B. a monitoring program;
- C. criteria for construction of a protective breakwater; and
- D. the information of the Board and Department of Land and Natural Resources.

A. General recommendations

1. Approximately 30,000 cu.yds. of sand should be emplaced on Kaimu Beach to enlarge it in accordance with Corps plans.

2. The sand to be transported should be drawn from deposits identified by the Corps above waterline near Kumukahi Point. Approximately 40,000 cu.yds are estimated recoverable from these deposits. The remainder, after beach enlargement, will be reserved for subsequent replenishment of the beach.

3. A beach monitoring program should be begun before the beach enlargement is undertaken and continued after the enlargement is complete, in accordance with specifications set forth below.

4. The determination whether or not a breakwater should be built should be based on results of the monitoring program as discussed below.

5. If a breakwater is to be constructed, it should be a submerged breakwater extending across Kaimu Bay as proposed by the Corps, unless some alternative providing adequate protection is identified prior to the determination that the breakwater is to be built.

6. The breakwater rock should be quarried from sites which have no archaeological significance and at which scenic detriments and public nuisances will be minimal.

7. Sand lost from the enlarged beach should be replenished at intervals of about 3 to 5 years. The reserve of Kumukahi sand will be used for replenishment until the reserve is exhausted. Thereafter, lava from the Royal Gardens subdivision, crushed to sand size, should be used unless some preferable alternative is identified.

B. Recommendations for monitoring

1. Within the period before a protective breakwater is built, the beach monitoring program in A.3. should include scheduled surveys as follows:

- a. An initial survey before beach enlargement is begun.
- b. An "as-built" survey as soon as practicable after the beach enlargement is complete.
- c. Surveys at two-month intervals for a year thereafter.
- d. Surveys at four-month intervals during the second year after the as-built survey.
- e. Surveys annually, thereafter, for 10 years.

2. The scheduled surveys will include profiles along the 8 ranges previously used by the Corps. Each profile should extend from the beach crest to 10 feet below mean sea level, or to continuous rock outcrop if such outcrop is less than 10 ft. below mean sea level. At the time of the first profile survey, or sooner, an attempt should be made to tie the Hawaii Institute of Geophysics range HHQ into the Corps system of ranges.

3. Sand samples should be collected at the time of each scheduled survey during the first year after beach enlargement and analyzed for grain-size distribution, grain shape, and general mineralogy. At least 15 samples shall be collected for each survey, including at least one for each range.

4. Any turbidity plumes should be noted at the time of each survey, and the turbidity measured in them.
5. Storm waves should be hindcast for each interval between scheduled surveys during the first two years after beach enlargement.
6. Additional surveys should be made following periods of heavy wave attack on the beach during the first two years after beach enlargement.
7. The monitoring program will be revised as appropriate if and when a breakwater is built.

C. Recommended breakwater construction criteria

The criteria for determining whether a breakwater will or will not be constructed should be based on the cumulative loss of sand from that portion of the beach lying between 2 ft. and 10 ft. above mean lower low water, from the time of the "as-built" survey to the time of a subsequent scheduled survey. The breakwater should be built if, and only if, the loss of sand thus determined, exceeds the following values:

For any survey scheduled
4 to 12 months after the
"as-built" survey:

Cumulative loss = 4,000 cu.yds.

For any subsequent
scheduled survey:

Cumulative loss = $2,400 + 1,600 T$ cu.yds.
where T = time elapsed from "as-built"
survey, in years.

D. Recommendations for informing DLNR

The 1973 recommendations of the Environmental Council indicated that the approval of the Board of Land and Natural Resources was necessary to the proposed Kaimu Beach project, and that the Department of Land and Natural Resources should maintain an overview of this project.

We recommend that the Council transmit these recommendations, together with any stand taken on them by the Council, to the Board and the Department.

For U.S. Army Corps of Engineers



F. M. Pender, Colonel, Corps of Engineers
District Engineer

For University of Hawaii Environmental Center



Doak C. Cox, Director